Code guidance from the Department of Labor and Industries

Department of LABOR AND INDUSTRIES

ELECTRICAL CURRENTS

Office of the Chief Electrical Inspector

Ron Fuller, Chief Electrical Inspector **Vol. 4 No. 10** **October 2001**

● Stakeholder Meetings for 2001

The department is again offering 4 Continuing Education Units (CEU's) for those who attend the meetings and score at least 70% on a take-home examination. After this printing, there may be late October meetings scheduled for E. Wenatchee, Okanogan, and Moses Lake. Check your local office.

Oct. 11, 2001 7-9 PM	Labor & Industries Office 12806 Gateway Drive, **Tukwila**
Oct. 17, 2001 6:30-8:45 PM	Moore Branch Public Library 215 S. 56th Street, **Tacoma**
Oct. 25, 2001 7-9 PM	Bellingham City Council Chambers 311 Grand Avenue, **Bellingham**
Oct. 30, 2001 7-9 PM	Labor & Industries Office 415 W. Wishkah, Suite 1B, **Aberdeen**
Nov. 1, 2001 7-9 PM	Labor & Industries Office 7273 Linderson Way SW, **Tumwater**
Nov. 15, 2001 6:30-9 PM	Wash. Mutual Bldg. (Comm. Room) 500 Pacific Avenue, **Bremerton**
Nov. 20, 2001 7-9 PM	Cowlitz County PUD Building 961 12th, **Longview**
Nov. 28, 2001 7-9 PM	Work Source Building 107 W. Jewett Blvd., **White Salmon**
Nov. 29, 2001 7-9 PM	Clark County PUD Building, Fl 3 1200 Fort Vancouver Way, **Vancouver**
Dec. 6, 2001 6:30-9 PM	Port Angeles City Council Chambers 321 E. 5th Street, **Port Angeles**

● Do You Have Any Prevailing Wage Jobs In Progress?

Public-works contractors can now use the Internet to get "Intent" and "Affidavit" forms approved more quickly, speeding up payments. The new electronic-filing service at L&I is expected to reduce to no more than 48 hours the time it takes to process prevailing wage forms. L&I's new service, which uses digital-signature technology, is the agency's latest step to offer e-commerce options. It also marks the first time L&I is offering a service that gives the customer the option to pay fees electronically by credit card. Information on the electronic-filing option and how to use it is available at **www.lni.wa.gov/prevailingwage/pwia**, or the prevailing wage office at (360) 902-5331.

● Cord-And-Plug Connected Household Appliances

Since the establishment of the 07B-residential maintenance electrical specialty (that includes appliance repair work), there have been many questions about what work is exempt from the licensing and certification requirements. Installation and maintenance of plug-in household appliances is outside the scope of electrical work covered by the provisions of chapter 19.28 RCW. The department has always considered cord-and-plug connected household appliances that are not covered in the National Electrical Code (NEC) to be in this "exempt" status (e.g. toasters, microwave ovens, TV/video and audio equipment, hair dryers). Appliances that are built-in or part of the infrastructure of most dwellings, and are included in the requirements of the NEC, have not been addressed as consistently.

Cord-and-plug connected household-type: refrigerators and freezers, clothes washers, dryers, ranges, garbage disposals, trash compactors, instant-hot water heaters, dishwashers, etc. **are exempt from electrical licensing and certification requirements**, whether the repair of these plug-in appliances is done on the customer's premises or elsewhere. Household-type appliances are identifiable by their electrical product category listing and labeling. *Note that the department is currently developing a new policy to be presented to the Electrical Board that will propose a definition of a "household-type appliance" independent of the occupancy in which it is installed.*

Many household appliances (e.g. garbage disposals, dishwashers, stoves and ranges, wall-mounted ovens, counter-mounted cook-tops) are installed with permanent wiring methods (hard-wired). Storage-type water heaters, range hoods, exhaust fans, and fixed heating appliances are all hard-wired. **Installation and maintenance of any permanently wired appliance, regardless of occupancy, requires electrical contractor licensing and properly certified installers.** We encourage all members of this industry to take advantage of the current, limited-time opportunity in our rules to "grandfather" previous experience and qualify to become licensed and certified to legally service hard-wired appliances.

● More Information On WAC Equipment Ground Fault Protection Requirements

This is a follow-up to the original article published in the March 2001 *ELECTRICAL CURRENTS* newsletter. The article stated, "*Equipment ground fault protection systems required by the NEC must be tested prior to being placed into service to verify proper installation and operation of the system…This test or a subsequent test must include all system feeders.*" If you add feeders to existing tested systems with equipment ground fault protection, you must have final testing done on the system.

This "final testing" requirement is to ensure that proper system equipment ground fault protection is not defeated by an unintended re-bonding of a neutral conductor. A complete repeat of the manufacturer's entire performance acceptance test is not required. The neutral resistance (isolation) portion of the test on the conductors of the added feeder(s) must be verified. The "final testing" still must be documented by the original testing firm.

● Clarification Of The Scope-Of-Work For Boiler Installers

When the 06A-HVAC/refrigeration limited energy technician electrical specialty was created, the scope-of-work was carefully negotiated with existing (contractor and electrician) electrical industry representatives. The certification is limited to: "*the installation of low-voltage, Class 2 HVAC/refrigeration control circuit cables*" and "*may replace line voltage components within the equipment, only if the components are like-in-kind with similar voltage and current ratings*". Certified 06A installers of residential and commercial boilers must abide by these limitations.

A special case exists for line voltage work done by certified 06A installers of **Field Erected Boiler Assemblies listed under ANSI/UL 2106**. For this specific industrial and commercial equipment, "*within the equipment*" includes the line voltage control devices, pumps and valves that are part of the listed field erected boiler assembly. All line voltage components wired by the 06A installer must be within the footprint of the listed assembly and served by power directly from a listed boiler control panel. The 06A specialty electrician cannot do wiring of any line voltage remote components or circuits of such systems extending outside of the designated boiler space.

● Identification Of Power-Limited Fire Alarm Circuits

In addition to the required red-painted enclosures, the special identification of power-limited fire protective signaling circuit conductors required in WAC 296-46A-700(2) is intended for raceway systems with single conductors or for the cable substitutions permitted in NEC 760-61(d). When a listed power limited fire alarm cable (identified FPL, FPLR, or FPLP) is used and the cable jacket identification is legible at each red-painted enclosure, no further marking is necessary.

● Equipment Grounds Are Required To Be Made Up At The Time Of Cover Inspection

WAC 296-46A-095(3) states "*…all required equipment grounding conductors installed in concealed raceway, cable, or flexible conduit systems must be completely installed and made up at the time of the rough-in cover inspection.*" This is a change from the old rule that only required the grounds in non-metallic sheathed cable installations to be made up at the time of inspection for cover. The new rule allows the inspector to verify a proper grounding system during the rough-in inspection.

● Code Question of the Month

This month's Code Question: You run a 20-amp circuit using #4 AWG copper conductors to supply parking lot lighting. The conductor size is increased to prevent voltage drop. What size copper conductor is required for equipment grounding? A.) #14 AWG, B) #12 AWG, C) #10 AWG, D) #4 AWG.

Last month's Code Question: (General Rule) The minimum horizontal separation from buried underground wiring and the inside wall of a pool is? A) 1 foot, B) 3 feet, C) 5 feet, D) No separation required. **The answer is: C) 5 feet. [NEC 680-10]**